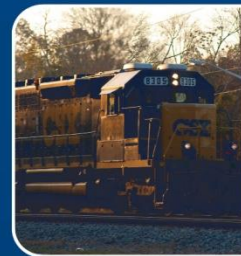


# Florida Statewide Model Mode Choice

*presented by*  
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# Objectives



- Add mode choice modeling capacity to Florida statewide model
  - Long distance travel – Separate auto travel from travel by non-auto modes (air, rail)
    - Not super critical for existing conditions
    - But allows examination of possible scenarios with improvements for non-auto modes
  - Short distance travel – Separate auto travel from travel by non-auto driver modes (local transit, non-motorized)
    - Need to account for higher non-auto driver modes in more urban areas
  - Enhanced modeling of managed lanes/toll roads

# Long Distance Mode Choice



- Insufficient data to estimate model for Florida (NHTS had very small samples of non-auto trips)
- Decision: Transfer model from another state
- Criteria (in descending importance):
  - Practical approach consistent with statewide model
  - Similar modes to those in Florida
  - As similar to Florida as possible (recognizing that Florida is unique)
  - Cube application
- **Decision: Transfer/adapt Virginia model**

# Short Distance Mode Choice



- Motivations
  - Abstraction methodology used to compute local transit skims
  - Explicit coding of local transit not necessary
  - Appropriate for a statewide model
- Data
  - GTFS
  - 2009 NHTS
  - NTD

# Short Distance Mode Choice



- Data Inputs
  - **Transfer areas:** the areas within which a person can travel
  - **Service areas:** the areas within which transit service is provided
  - **Level of Service:** a single number representing the quantity of local bus service
  - **Fare:** a composite value, indicating the typical fare paid by a customer

# Short Distance Mode Choice



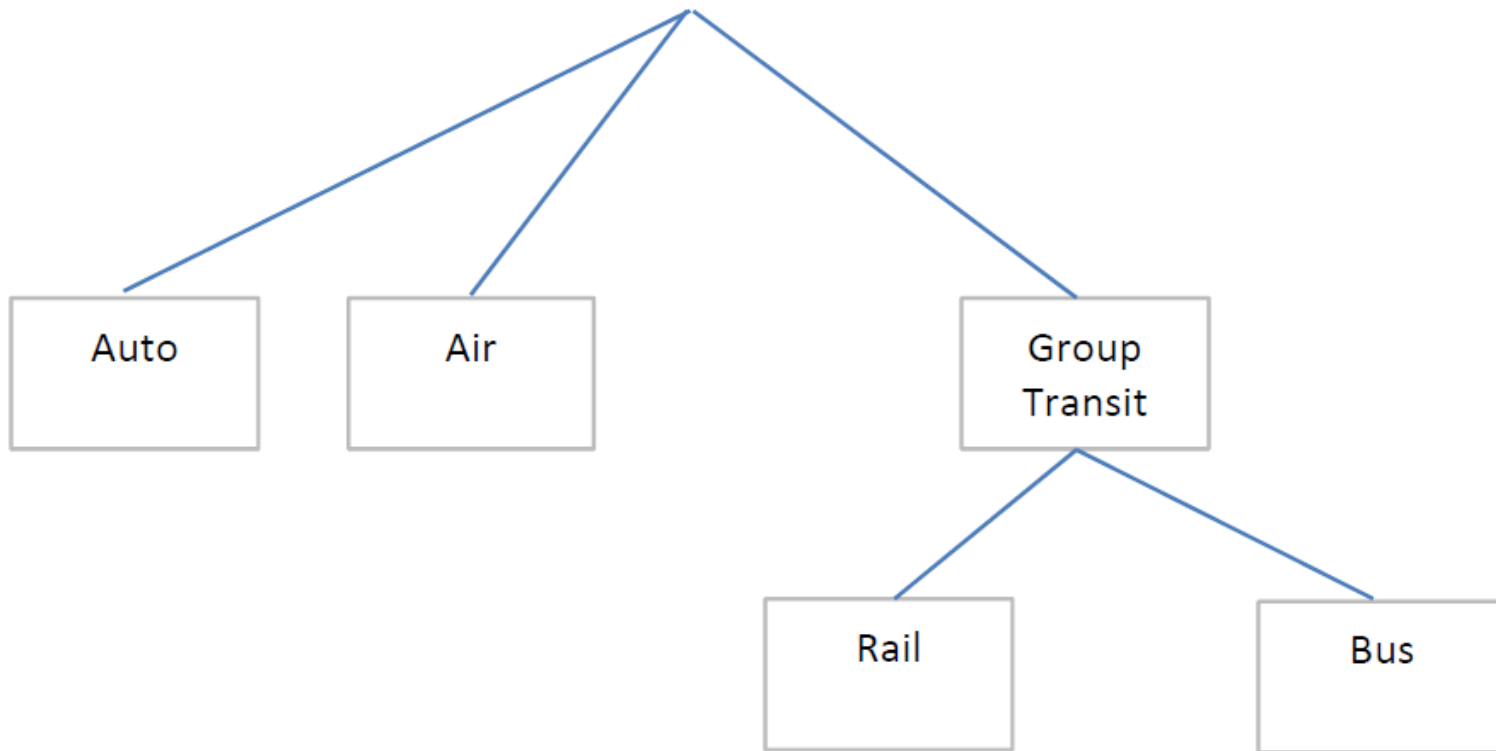
- IVT or OVT =  $\text{fn}(\text{LU}, \text{TR})$ 
  - IVT/OVT: In-/Out-of-vehicle times
  - LU: Land use variables
  - TR: Transportation (highway) variables
  - Depends on catchment area
    - Geographical accessibility to transit

# Short Distance Mode Choice



- Multinomial logit models
- Models by statewide model trip purpose
- Alternatives – Auto, transit, and non-motorized
- Variables – IVTT, OVTT, cost, distance, transit times
- NHTS 2009 add-on sample used in estimation
- The computed short distance auto share is used in subsequent model steps

# Virginia Statewide Mode Choice Model





# Virginia Model Adaptation



- Virginia model has separate LD trip purposes
  - Florida model has one LD purpose
  - Used “other” purpose for Florida model
  - Parameters close to averages for the Virginia purposes
- Added AV mode for potential future analyses
- Developed simple Amtrak rail network
  - Route between Jacksonville and Miami with intermediate stops
- Adapted Virginia model Cube application code

# There Are Always Complications...



- Bus runs were difficult to enter as model inputs
  - Irregular headways
  - Overlapping routes
  - Skipped stops on many runs
- Intercity bus ridership is low
- **Decided to drop the bus mode**

# Air Mode Coding



- Developed simple network for intra-Florida trips
- Airports included:
  - Miami, Fort Lauderdale, Key West, Daytona Beach, Orlando, Jacksonville, Tampa, Pensacola, Tallahassee
- Airlines serving intra-Florida trips:
  - American, JetBlue, Southwest, Silver Airways, Spirit



## Comparison to Observed Base Year

### Air:

- Observed – 3800
- Modeled – 4200

### Rail:

- Observed – 600
- Modeled – 600

# Enhanced Priced Roadway Modeling



- Segment auto trip tables by value of time
- VOT related to income

Group	Lower Bound	Share	Mean VOT	Inc1	Inc2	Inc3	Inc4	Inc5
VOT1	\$0.00	20.4%	\$1.72	44.1%	26.0%	17.0%	11.4%	1.8%
VOT2	\$2.50	58.2%	\$5.74	52.2%	64.3%	66.8%	65.6%	42.7%
VOT3	\$11.00	21.5%	\$21.01	3.6%	9.8%	16.2%	23.0%	55.4%



This slide is a test

If I don't have a slide that says "Questions?"  
does that mean no one can ask any?

Finding out, starting now...